

5.6 Reach 4

Surveys of Reach 4 (RM 15.6 – 11.2) were completed on September 19-22, 2003. Reach 4 is located at the downstream end of a broad floodplain, where both the channel and adjacent floodplain narrow considerably due to natural topographic confinement imposed by the adjacent left bank and right bank valley walls. Reach 4 is also in the former deposition zone of the Black River, which transported a considerable volume of sediment originating in the Cedar River prior to its diversion into Lake Washington in 1916. These two factors have led to increased sinuosity and incision within the floodplain. Reach 4 is much more urbanized than the reaches upstream. Woody debris is not transported to the reach in substantial quantities and large trees that remain on the banks are generally protected from erosion by bank armor. Tidal influence on flow begins to occur below Station 19 (Photo 5-12).

Table 5-4 summarizes habitat information collected in Reach 4. The total length of this reach was 4.4 miles (7.1 km) and glides were the only habitat type present. The mean OHWM width was 28 m, and the mean wetted width was 25 m. Overall, there were six pools in this reach, including large and small pools, for an average of 1.4 pools per mile for all pools and a total pool frequency of 42 CW/pool (Figure 5-25). The dominant forming feature of the two large pools in Reach 4 was riprap and bedrock, respectively. With few exceptions pools in Reach 4 were formed by lateral scour at riprap on the outside of bends. There were no existing or potential gravel storage areas in Reach 4.

Figure 5-26 shows the vegetative characteristics for Reach 4. Overhanging vegetation ranged from 0 percent to 40 percent, with a median overhang for the reach of 2 percent. Overall, vegetation in Reach 4 was medium to low quality and was dominated by invasive plants, but did contain some mature native vegetation (Photo 5-13). The median canopy cover was 37 percent.

There were 174 pieces of wood identified in Reach 4. Medium logs were the most abundant (91) with a high number of large logs (71) also found in the reach (Figure 27). There were no key pieces or log jams in Reach 4. There were several pilings with some wood racked against them at Station 15 (Photo 5-14).

Figure 5-28 shows the extent and type of shoreline armoring present in Reach 4. As with most of the rest of the survey area, riprap was the dominant armoring type.

There were several potential restoration opportunities in Reach 4 (Figure 5-29). Near stations 4-3 to 4-11, several opportunities exist for riparian vegetation restoration and channel improvements. However, restoration would be difficult given the current adjacent land uses. At stations 4-13 to 4-15, the understory of an area containing mature cottonwoods could be replanted with native vegetation. Stations 4-21 to 4-23 contain deep pools and some shorter riparian vegetation, but could be improved by restoring tall riparian cover.



Photo 5-12. Typical Reach 4 conditions including steep armored banks with invasive vegetation and sparse cottonwoods, Reach 4 Station 12.



Photo 5-13. Mature willows on the right bank at Reach 4, Station 21.



Photo 5-14. Pilings with raked wood on the right bank in Reach 4, Station 15 of the Lower Green River.

Table 5-4
Instream Habitat Summary Statistics for Reach 4

Parameter	Result
Location	RM 15.6 to 11.2
Reach length	7.1 km (4.4 miles)
River discharge during surveys ¹	200 to 290 cfs
Number of stations	24
Number of stations at glide habitats	23
Number of stations at pool habitats	1
Number of stations at riffle habitats	0
Number of stations at run habitats	0
Average OHWM width (used in CW calculations)	28 m
Average wetted width	25 m
Total number of pools (large and small ²)	6
Total pool frequency (large and small)	42 CW/pool
Total number of pools per mile (large and small)	1.4
Number of large pools	1
Large pool frequency	254 CW/pool
Number of large pools per mile	0.2
Percent large pools by length	1%
Percent large pools by area ³	< 1%
Dominant large pool forming factor	Riprap/bedrock
Large Pools formed by wood	0
Number of small pools ²	5
Small pool frequency	51 CW/pool
Number of small pools per mile	1.1
Total wood pieces (logs and rootwads)	174
Total wood pieces frequency ¹	0.7 pieces per CW
Total number of wood pieces per mile	40.0 pieces per mile
Number of key pieces (with and without rootwads)	0 with, 0 without
Key piece frequency ¹	0 pieces per CW
Number of key pieces per mile	0
Number of large wood pieces (with and without rootwads)	52 with, 39 without
Large wood pieces frequency	0.4 pieces per CW
Number of large wood pieces per mile	20.7
Number of medium wood pieces (with and without rootwads)	40 with, 31 without
Medium wood pieces frequency	0.3 pieces per CW
Number of medium wood pieces per mile	16.1
Number of rootwads	12
Total number of logjams	0
Average percent of visible armoring for both banks	57%
Dominant riparian vegetation type	Invasive
Range of percent overhanging vegetation for both banks	0% to 40%
Median overhanging vegetation for both banks	2%
Range of percent canopy cover	21% to 50%
Median canopy cover	37%
Number of existing and potential gravel storage areas	0 existing, 0 potential

Notes:

1-Flow based on USGS Gauge #12113000, Green River near Auburn, Washington

2-Small pools are those covering 25 percent to 50 percent of wetted width.

3-Area in reach calculated as reach length times average OHWM width.



Fig 5-25

Fig 5-26

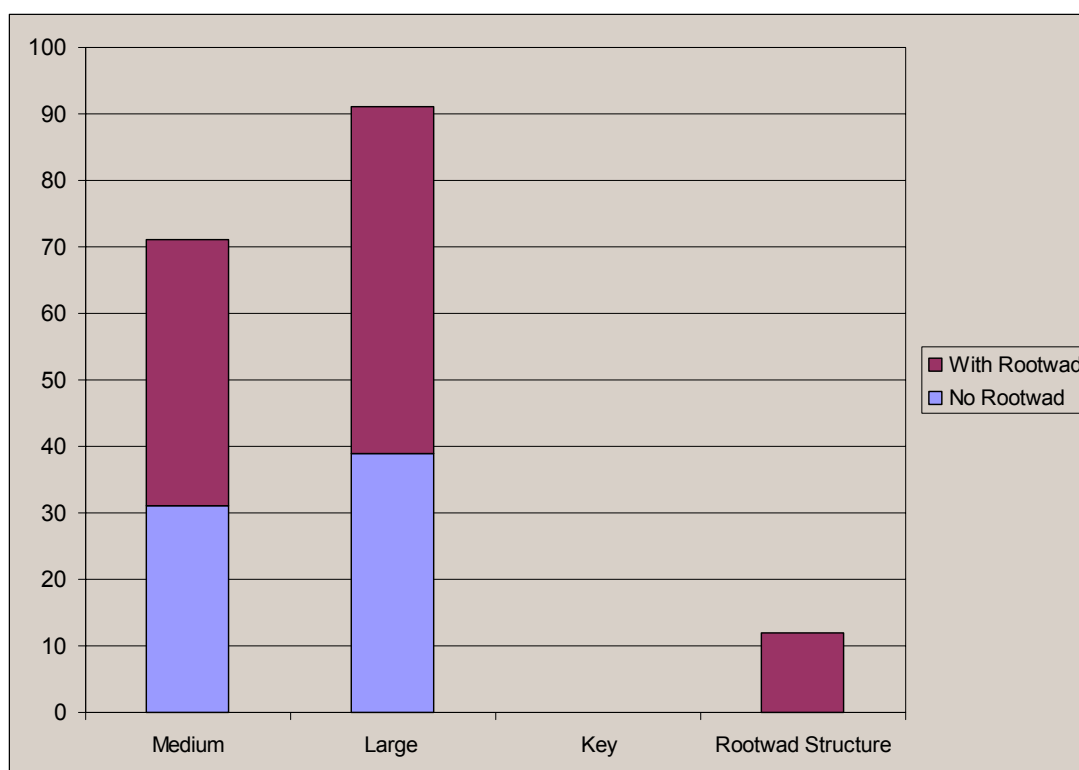


Figure 5-27. Numbers of wood pieces and distribution of size and type in Reach 4.

Figure 5-28

Figure 5-29